

**Development of the Automatic Transmitter/Receiver Alignment System (ATRAS) for ARGO-M.** M. S. Choi<sup>1,2</sup>, S. Y. Yu<sup>1</sup>, H. C. Lim<sup>1</sup>, S. J. Lee<sup>2</sup>, and N. S. Myung<sup>3</sup>, <sup>1</sup>Korea Astronomy and Space Science Institute, <sup>2</sup>Chung-nam National University, <sup>3</sup>Ray Applications, Co. Ltd.

Korea Astronomy and Space Science Institute (KASI) has fulfilled the design, development, installation, and operation of Accurate Ranging system for Geodetic Observation–Mobile (ARGO-M) which is a bi-static telescope for Satellite Laser Ranging (SLR) measurement in Korea. While the laser is propagating through the atmosphere, very small amount of laser is scattered by air molecule. And some of the scattered photons travel back to the receiving telescope. The scattering particles, when it encounter the laser beam, scatters the laser beam, it becomes a point source. Through the camera on board the receiving telescope, the individual point sources contribute in forming a back scatter image. However, the laser propagation direction is also subject to the misalignments and drifts thermal gradients, due to the sun light during the day time observation. These misalignment and drift in the laser propagation direction causes difficulty in acquiring target. KASI is developing the Automatic Transmitter/Receiver Alignment System (ATRAS) that is to stabilize the laser direction while SLR observation is being conducted. Finally, ATRAS system developed by KASI is expected to be utilized for enhanced operating during the daytime and nighttime in SLR observations.